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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/543,121

07/22/2005

Gilbert Bouquet

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THE DOW CHEMICAL COMPANY
INTELLECTUAL PROPERTY SECTION, P. O. BOX 1967
MIDLAND, MI 48641-1967

EXAMINER

ASINOVSKY, OLGA

ART UNIT

PAPER NUMBER

1711

MAIL DATE

DELIVERY MODE

08/08/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/543,121

Applicant(s)

BOUQUET ET AL.

Examiner

Olga Asinovsky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 17-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/23/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 6 and 9-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 6, line 2, term "capable" has no positive limitation but only requires the ability of the reaction. Therefore, the functionalized diene rubber containing a functional group capable of forming a stable free radical is indefinite. *In re Hutchison*, 69 USPQ 138.

Claims 9 and 10 are rejected for the same reason that claim 6 in light of the term "capable."

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-13 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Priddy et al U.S. Patent 5,721,320 or Boutillier et al U.S.

Patent 6,255,402, or Bertin et al U.S. Patent 6,335,401, or Nicol U.S. Patent 6,262,179 each in view of EP 0892 820.

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Priddy discloses a process for producing ABS copolymer by polymerizing a vinyl aromatic monomer in the presence of a diene rubbery using a stable free radical compound by emulsion polymerization process in the presence of solvent, column 5, lines 59-67; column 6, lines 1-60 and column 7, lines 24-44. The stable free radical reacts with the diene monomer or rubber and the polymer chain contains a stable free radical group, column 2, lines 37-40 and column 6, lines 32 and 47-53. The polybutadiene has pendant nitroxy functional groups. The functionalizing diene rubber is readable in Priddy invention, column 7, lines 57-65. The stable free radical such as 2,2,6,6-tetramethyl-1-piperidenyl-1-oxy (TEMPO), column 8, lines 23 and 40, is readable in the present claim 8. A nitroxy terminated polyisoprene is readable in the present claims. The chain transfer agent can be present, column 7, lines 53-56, for the present claims 11 and 13. Initiators such as free radical initiators are present, column 7, lines 1-23, for the present claims 12-13. In the working example 1 at column 10, the polybutadiene has a Mw of 3,930.

Priddy does not disclose the claimed solution viscosity of from 5 to less than 50 centipoise in the present claim 1.

It would have been obvious to one of ordinary skill in the art to consider that the claimed viscosity can be obtained in Priddy invention since reference discloses the analogous process condition, a solution medium and low Mw of the functionalized polybutadiene.

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Boutillier discloses a process for preparing a composition comprising a vinylaromatic polymer matrix and dispersed particles of rubber. The process is carried out in the presence of a stable free radical, a free radical initiator in a solvent medium, column 3, lines 15-18; column 7, lines 1-15. The stable free radical is readable in the present claims. The stable free radical is joined to two elastomer chains such that the polymeric chain is bifunctionalized, column 3, lines 48-67.

Boutillier does not disclose a solution viscosity of the functionalized rubber in the present claim 1. It would have been obvious to one of ordinary skill in the art to consider that the claimed viscosity would have been predictable because reference discloses analogous process conditions under controlling step for producing desired property of the functionalized diene rubber, column 9, example 3.

Bertin discloses a grafted copolymer in the presence of stable free radical, column 2, lines 30-39, 46-55; column 3, lines 5-17. The molecules of the stable free radical permanently alternate between the state of a radical and the state of a group linked to a polymer chain via a covalent bond, column 3, lines 5-10.

Bertin discloses a chain propagation of polymeric chain and change the morphology of rubber particles. The polymerization is carried out in a solvent medium, column 8, line 22.

Bertin does not disclose a solution viscosity of the functionalized rubber in the present claim 1. It would have been obvious to one of ordinary skill in the art to

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consider that the claimed viscosity would have been predictable because reference discloses analogous process conditions under controlling step for producing desired property of the functionalized diene rubber.

Nicol discloses a process for producing a composition comprising a vinylaromatic polymer and a rubber in the presence of a stable free radical, free radical initiator and organic solvent, column 1, lines 50-67; column 2, lines 27-60; column 4, lines 30-31 and 59-62.

Nicol does not disclose a solution viscosity of the polybutadiene.

It would have been obvious to one of ordinary skill in the art to consider that the claimed viscosity can be obtained in the specified range in the present claim 1, because reference discloses analogous process conditions under controlling step for producing desired property of the functionalized diene rubber.

None of the primary reference discloses an article for the present claim 19, EP'820 discloses rubber-modified polystyrene. The resulting product is useful in a wide variety of applications, page 5, lines 50-56.

It would have been obvious to one of ordinary skill in the art to use the resulting high-impact vinylaromatic polymer in each of the invention in primary reference for producing the desired application as suggested by EP'820, since all of the cited references disclose the analogous rubber-modified vinylaromatic polymer.

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Conclusion


4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References have been considered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 571-272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

O.A.
August 06, 2007


James J. Seidleck
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